Remarks/Arguments:

I. Status of the Claims

Claims 1 and 11 are amended herein. Support for this amendment is found throughout the application as originally filed, including Paragraphs [00017], [00032], and [00056]. No new matter has been introduced. Claim 2 has been cancelled (claims 3 -5 were previously cancelled). Claims 15-21 have been withdrawn from consideration in view of a restr iction requirement. As a result, claims 1 and 6 -14 remain pending and under examination in the above-identified application.

II. Claim Rejections under 35 U.S.C. §103

Applicants traverse the rejection of claims 1, 2, 6 -10 and 12-14 under 35 U.S.C. 103(a) as being unpatentable over Senecal et al. (U.S. Patent Application Publication 2001/0045547; hereinafter, "the Senecal reference") in combination with Kasai et al. (JP 01111007; hereinafter, "the Kasai reference"). Reconsideration and withdrawal of the rejection are respectfully requested in view of the claim amendments and arguments presented herein.

As reflected in amended independent claim 1, one embodiment of Applicants' invention is directed to a process to make a dyed fiber which comprises mixing at least one dye capable of reversibly changing color and at least one polymer into at least one solvent at a temperature below the temperature at which the dye or polymer degrades to form a polymer dye solution and electrospinning said polymer dye solutio n to form a dyed fiber wherein the dye penetrates more than the surface of the dyed fiber and is distributed uniformly throughout the dyed fiber, wherein the dye comprises a photochromic compound and wherein the dyed fiber thereby obtained is capable of ex hibiting a reversible color change when exposed to light.

The Senecal reference, in Paragraph [0022], describes the incorporation of chemical indicator (pH) dyes into a DMF solution of polyurethane, with fibers being electrostatically spun from this soluti on onto a target substrate. The reference further characterizes these

dyes as "colorimetric dyes" and teaches that indicator dye membranes prepared from the spun fibers "demonstrate reversible color changes consistent with chemical environment exposures [emphasis added]." Phenol red, thymol blue and phenolphthalein are mentioned as non - limiting examples of such colorimetric dyes. Thus, the reference proposes the use of dyes which are capable of reversibly changing color in response to changes in the chemical environment in which they are placed (e.g., the pH of the environment). The Senecal reference does not characterize the distribution of the colorimetric dye within the fibers (i.e., it does not teach that the colorimetric dye is uniformly dispersed t hroughout the fiber; since the dye changes color in response to the chemical environment of the fiber, an ordinarily skilled person would interpret this to mean that the dye must be on the fiber surface such that it is capable of interacting with such chem ical environment).

Applicants' claimed invention thus is neither taught nor suggested by the Senecal reference. The Examiner relies on the disclosure of the Kasai reference to cure the deficiencies of the Senecal reference. However, such reliance is not justified, as a person of ordinary skill in the art would not have found the process recited in the currently pending claims to be obvious from the combined disclosures of these references. The English language abstract of the Kasai reference provides lit tle description of the process by which the "photochromic fibre" which is the subject of this reference may be prepared, other than "[t]he photochromic fibre is obtd. by dyeing with photochromic substance." An ordinarily skilled artisan would understand t his to mean that the already -formed fiber should be subjected to a conventional dyeing process, wherein the photochromic substance is deposited only on the exterior surface of the fiber (such as by immersing the fiber into a dye solution). There is no teaching or suggestion that a photochromic dye might be capable of being incorporated in a uniform manner within a fiber as it is being formed by electrospinning from a solution. Even if an ordinarily skilled person might have contemplated the possibility of substituting a reversible photochromic dye for the colorimetric dyes of the Senecal reference, the outcome of such a modification of the Senecal reference would have been far from certain. Since electrospinning of a polymer solution involves fiber format ion and solvent removal, there would not have been any reasonable expectation that subjecting a polymer dye solution containing both a polymer and a reversible photochromic dye having different solubility characteristics to electrospinning would likely lea d to the formation of a fiber " wherein the dye

penetrates more than the surface of the dyed fiber and is distributed uniformly throughout the dyed fiber," as recited in Applicants' claims. That is, owing to the typically different solubility characteristics of the polymer and the reversible photochromic dye, the skilled artisan would have instead believed that a non-uniform distribution of the dye in the final fiber would probably be achieved. The uniform dye distribution achieved by operation of Applicants' invention thus was a surprising result. Further advantages of incorporating photochromic compounds uniformly within an electrospun fiber, rather than just on the fiber surface, are that the dyed fiber becomes much more resistant to fading and abrasion (which results in an enhanced photochromic life span) and exhibits fewer color flaws (e.g., uneven appearance) due to non-uniform surface application of the dye.

Applicants traverse the rejection of claim 11 under 35 U.S.C. 103(a) as being unpatentable over the Senecal reference in combination with the Kasai reference and further in view of Balkus, Jr. et al. (U.S. Patent Application Publication 2003/0168756; hereinafter, "the Balkus reference"). Reconsideration and withdrawal of the rejection are respectfully requested in view of the claim amendments and arguments presented herein.

Independent claim 11 is directed to one aspect of Applicants' invention which provides a process to make a dyed fiber which comprises mixing at least a photochromic dye capable of reversibly changing color and a polymethyl methacrylate polymer into a $CHCl_3$ solution to form a polymer dye solution and electrospinning said polymer dye solution to form a dyed fiber wherein the dye penetrates more than the surface of the dyed fiber and is distributed uniformly throughout the dyed fiber and wherein the dyed fiber thereby obtained is capable of exhibiting a reversible color change when exposed to light. For the reasons set forth previously, the combined disclosures of the Senecal and Kasai references would not have made Applicants' claimed process obvious. The deficiencies of these references are not remedied by the Balkus reference. Although the Balkus reference teaches the electrospinning of composite fibers from a solution containing a 7-hydroxy coumarin (umbelliferone) dye, there is no indication that a photochromic compound could instead be employed or that a dyed fiber wherein the photochromic compound penetrates more than the surface of the dyed fiber and is distributed uniformly throughout the dyed fiber would likely thereby be produced.

IV. Conclusions

Applicants respectfully submit that the application is in condition for allowance and early and favorable action thereon is requested. If any issues should remain, the Examiner is invited to contact Applicants' legal representatives at the telephone numb er shown below.

Respectfully submitted,

Rex A. Donnelly, Reg. No. 41,712
Stephen D. Harper, Reg. No. 33,243
Attorneys for Applicants

RAD/SDH/jmh

Dated: September 21, 2010

P.O. Box 980
Valley Forge, PA 19482
(610) 407-0700

The Director is hereby authorized to charge or credit Deposit Account No. **18-0350** for any additional fees, or any underpayment or credit for overpayment in connection herewith.

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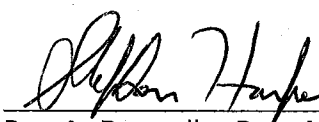

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